

GARMENT REFRESHING APPARATUS AND METHOD

FIELD OF THE INVENTION

This invention relates generally to garment cleaning and, in particular, to a system and method of removing odors from clothes.

BACKGROUND OF THE INVENTION

5 There are times when a person's clothes may benefit from "cleaning" even though the garments are not technically "dirty." For example, when clothes are exposed to cigarette smoke, fragrances, or the like, they may benefit from deodorizing while not justifying the high cost of dry cleaning. While garment refreshing sprays such as Fabrese[™] do exist, they do not last that long, they should not be used on leather or
10 delicate fabrics, the scent is not universally pleasing, and are tend to be expensive.

Garment refreshing systems have been patented, but the apparatus tends to perform too many other functions, resulting in an expensive product. An example is the "clothes rejuvenator" described in U.S. Patent No. 3,670,425. The system includes a blower-dryer and a vaporizer which are operable to admit steam and a heated current of
15 air to a cabinet. A control enclosure is also provided in the cabinet housing controls which automatically control the operation of the heater/blower and the vaporizer. The steam from the vaporizer is said to steam out creases as garments hang in the cabinet, while the heated current of air dries and sanitizes damp, limp and musty clothing.

U.S. Patent No. 3,805,561 discloses a garment finishing apparatus for de-
20 wrinkling clothes including a cabinet into the interior of which clothes to be finished are placed via a door, a steam generator for converting water into steam which is then emitted into the interior of the cabinet for de-wrinkling the clothes, the steam generator being characterized by instantaneously converting the water into steam and generating a predetermined quantity of steam per refinishing cycle irrespective of the pressure at
25 which the water is applied to the steam generator, and air circulating and heating means

for recirculating hot air through the interior of the cabinet to dry the previously steamed clothes.

5 A portable clothes dryer is described in U.S. Patent No. 3,432,939. The device includes an enclosure having a top, base and collapsible sides defining a clothes drying chamber between the top and the bottom. The blower and heating elements are located within the base to blow warm air upwardly into the clothes drying chamber, and a removable drip tray is also positioned in the base to collect moisture which drips from the clothes being dried in the chamber.

10 Published Japanese Abstract No. 03097186 is directed to a clothes refreshing device. By circulating hot and humid air produced by a steam generating means inside a housing in which clothing has been placed, moisture and heat is given to the clothes so that the recovery of fibers is promoted and the wrinkles in the clothes are removed. The clothes can also be deodorized by the circulating hot and humid air. The moisture in the components of odor dissolved thereinto are drained outside the device as water.

15 Published Japanese Abstract No. 06297823, entitled "Air Blowing Unit," appears to be limited to entirely human bodies. External air is taken from inlets and passed through electrostatic dust collectors and deodorized devices and blown against a user's person using fans. The airflow is given a fragrance by a fragrance-producing part and then blown evenly against a user following the cleaning and deodorizing process. This
20 purported yields a feeling of refreshment, while the smell "sticking to" clothes is masked or neutralized by the fragrance.

The apparel conditioner system of U.S. Patent No. 5,666,743 includes an apparel conditioning device that can be used to dry and deodorize apparel. The apparel conditioning device can be supported inside an outer enclosure to comprise an apparel
25 conditioner system used to improve the deodorizing of apparel along with drying the apparel. The apparel conditioning device includes a fan to force ambient air through an air passage defined within a housing of the apparel conditioning device. An adjustable apparel rack is positioned within the air flow passage using an adjustable rack mount. The position of the apparel rack is selected for supporting and holding the apparel such

that a flow of ambient air can circulate to the inside surfaces of apparel having an inside surfaces and envelop the outside surfaces of the apparel at the same time. The fan has a speed adjustment to obtain a velocity of the flow of the ambient air to improve the circulation in and envelopment around the apparel. Apparel includes not only any article
5 of clothing but also sporting gear. No hangers or odor-removing filtration is provided.

U.S. Patent No. 5,815,961 is directed to clothes treating apparatus and method for subjecting clothes items to moisture, pressure and heat for refreshing and dewrinkling the clothes items. A cabinet defines an interior region for receiving clothes, the interior region having opposed inner side surfaces. A door is hingedly connected to the cabinet
10 for closing the interior region. An inflatable hanger for supporting shirt-like clothes items is disposed within the interior region. A blower selectively inflates the inflatable hanger for pressing the shirt-like clothes item against the cabinet inner side surfaces. A steam generation means is provided for introducing moist air into the cabinet for humidifying the clothes item disposed therein. A heater and fan supply heated air into the interior
15 region for drying the shirt-like clothes items disposed therein. During the dewrinkling cycle, steam is introduced into the interior region while the inflatable hanger assembly is periodically inflated. Following the steaming period, the inflatable hanger is inflated while the clothes are subject to warm air such that the clothes wrinkles are pressed out and the clothes are partially dried, setting the clothes in a smooth appearance. Heated air
20 is then delivered into the interior region to completely dry the clothes item.

In terms of commercially available products, the "Closest & Travel Air Purifier/Deodorizer" is a small portable unit that hangs in the closet or garment bag, and silently "neutralizes" odors and airborne pollutants using "zyonic" technology. This zyonic technology uses super-oxygenated molecules to oxidize and neutralize pollutants,
25 plus negative ions to pull them out of the air. Another available product is called "The Personal Valet," produced by a joint venture between California Closets and Whirlpool. It is reportedly about the size of a small bookcase, and uses a heated mist to remove wrinkles and odors from clothes hanging in a closet.

SUMMARY OF THE INVENTION

This invention improves upon the existing art by providing an inexpensive yet effective garment refreshing system and methods of using the same. In terms of apparatus, the system includes an enclosure dimensioned to receive one or more articles
5 of clothing. The enclosure has a top, a bottom, a sidewall, an air inlet and an air outlet, and a hook or other element on the top to facilitate hanging in a closet or other location. The system further includes an electrical fan at the air inlet for bringing air into the enclosure and past the clothing to the air outlet, and a filter supported at the air outlet for collecting odors removed from the clothing.

10 In the preferred embodiment, the fan is disposed on the top, and the filter is disposed on the bottom of the enclosure. Though other technologies may be applicable, the preferred filter is based upon activated charcoal. The filter may be removable or hinged to temporarily remove it from the air outlet if the system is used in a garage, basement, or out-of-doors, for example. The preferred configuration further includes a
15 support within the enclosure to receive clothing on hangers, and the sidewall includes a closable opening to place clothing into, and remove clothing from the enclosure.

Portions of the enclosure, including the top and bottom, may be rigid or semi-rigid, and the sidewall may be substantially flexible, allowing the top and bottom to be brought together and fastened with the sidewall contained therein for transport. The
20 sidewall may also be constructed of substantially transparent plastic, for example, to view the contents of the enclosure.

While a high-voltage A.C. fan may be used that plugs directly into a wall outlet, a low-voltage D.C. fan and power converter to transform A.C. line voltage to the low-voltage D.C. is preferred. The use of a low-voltage D.C. fan, such as a 12-VDC fan, for
25 example, would also facilitate the use of a connector to operate the fan from an auxiliary power receptacle in a vehicle.

Additionally, although the air delivered by the fan may be brought more or less directly into the enclosure from a single point, an air-distribution plenum from the air inlet may be provided within the enclosure to direct the air past the clothing. Such an air-

distribution plenum may include, for example, one or more perforated flexible tubes. As a further option, a material associated with the air inlet to introduce a deodorizer or fragrance into the enclosure. For example, an absorbent material may be provided to receive a deodorizer or fragrance in liquid form.

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BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a drawing of a preferred embodiment according to the invention;

FIGURE 2 is a drawing of the embodiment of Figure 1 in a collapsed state for transport; and

FIGURE 3 is a drawing of an alternative embodiment using an air distribution
10 plenum.

DETAILED DESCRIPTION OF THE INVENTION

Turning now to the drawings, Figure 1 is a perspective view of a preferred embodiment of the invention, indicated generally at 100. The unit includes a housing comprised of a top portion 104, a bottom portion 106, and a flexible wall 102 having an
15 access portion 112. The top and bottom portions 104, 106 are preferably constructed of molded plastic, while the flexible wall 102 is preferably transparent vinyl or other plastic material. The closure 112 may be a zipper, or other suitable fastening means. Although, in the preferred embodiment, rigid or semi-rigid top and bottom portions are used in conjunction with a flexible side wall, it will be appreciated that the entire unit may be
20 rigid, semi-rigid, or flexible, depending upon design and manufacturing considerations.

Again referring to the preferred embodiment of Figure 1, the top portion 104 includes an inlet fan 120 that draws ambient air into the enclosure, which passes over garment(s) 110 placed therewithin, and exiting through the bottom portion 106, which includes a filter 130. The fan 120, which is preferably a low-voltage "whisper" type fan,
25 may either be powered by batteries or a plug-in power supply 124 through cable 122. A 12-volt fan 120 is preferably used, so that the power supply 124 may be replaced with a utility plug for cigarette lighter/vehicle use. A control 128 on the front of top portion 104

is used to turn the fan 120 on and off, and may optionally include a speed control and/or indicator light.

Although only one fan 120 is shown, additional fans may be provided. Additionally, although the flow of air is shown from being from top to bottom, it will be appreciated that air may be drawn in through the bottom and exhausted through the top or side(s), as an alternative. As a further option, a filter material 130 may be supported relative to the fan 120, to impart fragrances and/or deodorizing agents into the air stream flowing over the garment(s) 110. For example, panel 130 may be made of a particular material, such as cedar, or may be permanently impregnated with a deodorizing material or, alternatively, may be absorbent to receive a spray or drops of a liquid fragrance provided to a user, if desired. In this way, a user may potentially select one fragrance from many to find a desired scent.

The purpose of filter 130 is to collect odors carried by the flowing air from simply being returned into the closet or room in which the device 100 hangs using hooks 105. However, particularly if a fragrance-imparting material of substance is provided in conjunction with the fan, an alternative embodiment may be provided without a filter. If provided, the filter 130 is made of an activated charcoal or microporous material, much like the filters used in some heating/cooling installations, and is also removable, so that it may be exchanged for a new filter or eliminated if the unit 100 is hung in a garage, or outside where the odors from the clothes would not be dissipated into a living environment. Preferably, the filter 130 fits into a recess in bottom portion 106, thereby being held in place by gravity or using clips for such purpose or filter 130 may be hingedly affixed to the bottom portion 106.

Figure 2 is a drawing which shows how, using the preferred construction of Figure 1, the flexible wall 102 may be collapsed, and the top and bottom portions brought together and closed with some sort of fastening means (not shown), thereby providing a more compact and portable unit for transport. The power supply 124 and/or filter medium 130, if provided, may also be stowed within this collapsed structure and carried using handle 126.

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Figure 3 is a drawing which shows how, as opposed a central air inlet, one or more plenums such as 302 with perforations 304 may be provided for insertion into an article of clothing for enhanced odor removal. Although three plenums are shown, one for the body of a jacket, for example in each arm, more or fewer may be provided as
5 options.

I claim: